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AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: **DIAGNOSTICS AND THERAPEUTICS FOR DISEASES ASSOCIATED WITH HM74**

(57) Abstract: The invention provides a human HM74 which is associated with the disorders of the peripheral and central nervous system, cardiovascular diseases, hematological diseases, cancer, inflammation, respiratory diseases and gastroenterological diseases. The invention also provides assays for the identification of compounds useful in the treatment or prevention of disorders of the peripheral and central nervous system, cardiovascular diseases, hematological diseases, cancer, inflammation, respiratory diseases and gastroenterological diseases. The invention also features compounds which bind to and/or activate or inhibit the activity of HM74 as well as pharmaceutical compositions comprising such compounds.

WO 2004/071394 A3

# INTERNATIONAL SEARCH REPORT

Internat' Application No  
PCT/EP2004/000885

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/74 G01N33/68 G01N33/566 G01N33/574

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/77320 A (BAYER AG ; XIAO YONGHONG (US)) 18 October 2001 (2001-10-18) abstract page 7 claims 10-17 example 13 sequence 3	1-26
X	WO 01/94385 A (BAYER AG ; RAMAKRISHNAN SHYAM (US)) 13 December 2001 (2001-12-13) abstract sequence 4 claims 1-75	1-26

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### ° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

15 July 2004

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14 OCT 2004

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

Intern. Application No  
PCT/EP2004/000885

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98/56820 A (ELSHOURBAGY NABIL A ; SMITHKLINE BEECHAM CORP (US); LI XIAOTONG (US);) 17 December 1998 (1998-12-17) page 15, line 18 - line 26 example 1 claims 1-12 sequence 2 -----	1-26
X	WO 02/061087 A (ROUSH CHRISTINE L ; BROWN JOSEPH P (US); BURMER GLENNA C (US); LIFESPA) 8 August 2002 (2002-08-08) cited in the application paragraphs [0015], [0035], [0266] sequence 281 -----	1-26
X	WO 01/73029 A (PE CORP NY) 4 October 2001 (2001-10-04) page 30, line 15 - line 27 claims 14,17,18 sequence 4 -----	1-26

# INTERNATIONAL SEARCH REPORT

In

International application No.  
CT/EP2004/000885**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: **26 (partially)**  
because they relate to subject matter not required to be searched by this Authority, namely:  
**Although claim 26 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.**
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-26

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Although claim 26 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

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Continuation of Box II.1

Claims Nos.: 26 (partially)

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in disorders of the peripheral and central nervous system  
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2. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in cardiovascular diseases  
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3. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in hematological diseases  
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4. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in cancer  
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5. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in inflammation  
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6. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in respiratory diseases  
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7. claims: 1-26 (all partially)

Method of screening for therapeutic agents, method of diagnosis, pharmaceutical compositions and their use in gastroenterological diseases  
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# INTERNATIONAL SEARCH REPORT

Internal Application No  
PCT/EP2004/000885

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0177320	A	18-10-2001	AU 4652601 A WO 0177320 A2 EP 1272631 A2	23-10-2001 18-10-2001 08-01-2003
WO 0194385	A	13-12-2001	AU 6604901 A WO 0194385 A2 EP 1292677 A2	17-12-2001 13-12-2001 19-03-2003
WO 9856820	A	17-12-1998	AU 7966098 A EP 1007563 A1 JP 2002508660 T WO 9856820 A1	30-12-1998 14-06-2000 19-03-2002 17-12-1998
WO 02061087	A	08-08-2002	WO 02061087 A2	08-08-2002
WO 0173029	A	04-10-2001	AU 4776501 A CA 2404411 A1 EP 1278838 A2 JP 2004500113 T WO 0173029 A2 US 2003077734 A1	08-10-2001 04-10-2001 29-01-2003 08-01-2004 04-10-2001 24-04-2003